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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/707,897	01/22/2004	Jay S. Burnham	BUR920030110US1	1896

7590 07/13/2006

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EXAMINER

PRENTY, MARK V

ART UNIT	PAPER NUMBER
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2822

DATE MAILED: 07/13/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/707,897

Applicant(s)

BURNHAM ET AL.

Examiner

MARK PRENTY

Art Unit

2822

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 29 June 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 17-19, 21, 23, 32-34 and 36 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 17-19, 21, 32-34 and 36 is/are allowed.
- 6) ☒ Claim(s) 23 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

This Office Action is in response to the amendment filed on June 29, 2006. That amendment has been entered. An appeal conference was not held.

The specification is objected to in that "atoms/cm²" [paragraphs 0036 and 0047] should read, "atoms/cm³," because such is the parameter of the concentration context of those paragraphs (see paragraph [0036], for example, which subsequently discloses "However, other levels of nitrogen concentration may be achieved"). Correction is required (note that the amendment filed on November 2, 2005, made similar corrections to paragraphs 0032-0034, 0036, 0046 and 0047, but the "supplemental" amendment filed on November 4, 2005, undid the corrections made to paragraphs 0036 and 0047).

Claim 23 is rejected under 35 U.S.C. 103(a) as being unpatentable over United States Patent 6,821,833 to Chou et al. (Chou) together with United States Patent 6,700,170 to Morosawa et al. (Morosawa).

As to independent claim 23, Chou discloses a semiconductor structure (see the entire patent, including the Figs. 5A-5F disclosure) comprising: a semiconductor substrate 12; a first active device 16 formed on the substrate, the first active device having a first gate dielectric 18B, which has a first concentration of nitrogen; and a second active device 14 formed on the substrate, the second active device having a second gate dielectric 18C, which has a second concentration of nitrogen different than the first concentration of nitrogen.

The difference between claim 23 and Chou is claim 23 recites, "wherein the first concentration of nitrogen is about 8×10^{14} to 1×10^{22} atoms/cm³."

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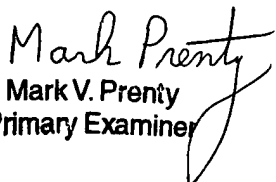
Morosawa teaches forming a PMOS device's gate dielectric with a nitrogen concentration of 1×10^{20} atoms/cm³ or more in order to prevent boron contained in the PMOS gate from diffusing into the channel (see the entire patent, including the Abstract, for example).

It would have been obvious to one skilled in the art to form Chou's PMOS gate dielectric 18B with a nitrogen concentration of 1×10^{20} atoms/cm³ or more in order to prevent boron contained in the PMOS gate from diffusing into the channel.

Claim 23 is thus rejected under 35 U.S.C. 103(a) as being unpatentable over Chou together with Morosawa.

Claims 17-19, 21, 32-34 and 36 are allowable over the prior art of record.

Registered practitioners can telephone the examiner at (571) 272-1843. Any voicemail message left for the examiner must include the name and registration number of the registered practitioner calling, and the Application/Control (Serial) Number. Technology Center 2800's general telephone number is (571) 272-2800.


Mark V. Prenty
Primary Examiner